CLAIMS

1. An installation comprising a rotating high-voltage single-winding/multiple-winding machine and a converter, **characterized** in that a mechanical torque is converted into direct current and direct voltage via the converter without intermediate transformers and/or reactors.

2. An installation according to claim 1, **characterized** in that the converter comprises semiconductor devices which are connected and function as an AC/DC converter.

3. An installation comprising a rotating high-voltage single-winding/multiple-winding machine and a converter, **characterized** in that direct current and direct voltage are converted via the converter into a mechanical torque without intermediate transformers and/or reactors.

4. An installation according to claim 3, **characterized** in that the converter comprises semiconductor devices which are connected and function as a DC/AC converter.

5. An installation according to claims 1 and 2, **characterized** in that to the AC/DC rectifier there is connected a DC/AC inverter with direct connection to an ac network without intermediate transformers and/or reactors.

6. An installation according to claims 3 and 4, **characterized** in that to the dc side of the DC/AC inverter there is connected a DC/AC rectifier with direct connection to an ac network without intermediate transformers and/or reactors.

7. An installation according to claims 2 and 4, **characterized** in that to the semiconductor devices may consist of thyristors, diodes, triacs, gate turn-off thyristors (GTO), bipolar transistors (BJT), PWM transistors, MOSFET, insulated gate bipolar transistors (IGBT), static induction transistors (SIT), static induction thyristors (SITH), MOS-controlled thyristors (MCT) and similar components with semiconductor properties.

8. An installation according to claims 1, 2, 3 and 4, **characterized** in that the converters constitute an integral part of the rotating high-voltage single-winding/multiple-winding machine.

9. An installation according to claims 1, 2 and 5, **characterized** in that the converters constitute an integral part of the rotating high-voltage single-winding/multiple-winding machine.

10. An installation according to claims 1, 2 and 6, **characterized** in that the converters constitute an integral part of the rotating high-voltage single-winding/multiple-winding machine.

11. An installation according to claims 1, 2 and 5, **characterized** in that the rotating high-voltage single-winding/multiple-winding machine and the semiconductor devices have a common cooling system.

12. An installation according to claims 1, 2 and 6, **characterized** in that the rotating high-voltage single-winding/multiple-winding machine and the semiconductor devices have a common cooling system.

13. An installation according to claims 1, 2 and 5, **characterized** in that the rotating high-voltage single-winding/multiple-winding machine and the semiconductor devices have the same and common ground connection.

14. An installation according to claims 1, 2 and 6, **characterized** in that the rotating high-voltage single-winding/multiple-winding machine and the semiconductor devices have the same and common ground connection.

15. An installation according to claims 1 and 3 and wherein the rotating high-voltage single-winding/multiple-winding machine comprises a magnetic circuit with one or more magnetic cores and one or more windings phase-shifted in space, **characterized** in that the windings comprise one or more current-carrying conductors (2), that around each conductor there is arranged a first layer (3) with semiconducting properties, that around the first layer there is arranged a solid insulating layer (4), and that around the insulating layer there is arranged a second layer (5) with semiconducting properties.

16. A rotating high-voltage single-winding/multiple-winding machine according to claim 15, **characterized** in that the first layer (3) is at substantially the same potential as the conductor.

17. A rotating high-voltage single-winding/multiple-winding machine according to claim 15, **characterized** in that the second layer (5) is arranged in such a way that it constitutes an equipotential surface surrounding the conductor/conductors.

18. A rotating high-voltage single-winding/multiple-winding machine according to claim 15, **characterized** in that the second layer (5) is connected to ground potential.

19. A rotating high-voltage single-winding/multiple-winding machine according to claim 15, 16, 17 or 18, **characterized** in that, for the winding, all the semiconducting layers and insulating layers exhibit similar thermal properties, such that, upon a thermal movement in the winding, no defects, cracks, or the like, occur in the insulating parts.

20. A rotating high-voltage single-winding/multiple-winding machine according to claim 15, **characterized** in that the current-carrying conductor comprises a number of strands, whereby only a small number of the strands are non-insulated from each other.

21. A rotating high-voltage single-winding/multiple-winding machine wherein the magnetic circuit comprises a magnetic core and one or more windings phase-shifted in space, **characterized** in that the windings comprise a cable including one or more current carrying conductors (2), that each conductor comprises a number of strands, that around each conductor there is arranged an inner semiconducting layer (3), around which there is arranged an insulating layer (4) of solid insulation, around which there is arranged an outer semiconducting layer (5).

22. A rotating high-voltage single-winding/multiple-winding machine with a magnetic circuit according to claim 21, ~~characterized in that~~ wherein the cable also comprises a metal shield and/or a protective layer.

23. A rotating high-voltage single-winding/multiple-winding machine according to claim 21, ~~characterized in that~~ wherein the magnetic circuit is arranged in the stator and/or the rotor of the rotating electric machine.

24. A rotating high-voltage single-winding/multiple-winding machine according to claim 21, ~~characterized~~ wherein in that the outer semiconducting layer ~~(5)~~ is cut off into a number of parts which are separately connected to ground potential.

25. A rotating high-voltage single-winding/multiple-winding machine according to claim 21, 22, 23 or 24, **characterized** in that with connection of the outer semiconducting layer to ground potential, the electric field of the machine outside the semiconducting layer both in the slots and in the coil-end region will be near zero.

26. A rotating high-voltage single-winding/multiple-winding machine according to claims 21 and 22, **characterized** in that, when the cable comprises several conductors, these are transposed.

27. A rotating high-voltage single-winding/multiple-winding machine with a magnetic circuit according to claim 21, ~~characterized in that~~ wherein the current-carrying conductor/conductors ~~(2)~~ comprise both non-insulated and insulated wires, stranded into a number of layers.

28. A rotating high-voltage single-winding/multiple-winding machine with a magnetic circuit according to claim 21, ~~characterized~~ wherein in that the current-carrying conductor/conductors ~~(2)~~ comprise both non-insulated and insulated strands, transposed into a number of layers.

29. A rotating high-voltage single-winding/multiple-winding machine with a magnetic circuit according to claim 21, **characterized** in that the slots (10) are formed as a number of cylindrical openings (12), extending axially and radially outside one another, with a substantially circular cross section separated by a narrower waist portion (13) between the cylindrical openings.

30. A rotating high-voltage single-winding/multiple-winding machine with a magnetic circuit according to claims 21 and 29, **characterized** in that

the substantially circular cross section of the cylindrical openings (12) of the slots, counting from a back portion (8) of the laminated core, is designed with a continuously decreasing radius.

31. A rotating high-voltage single-winding/multiple-winding machine with a magnetic circuit according to claims 21 and 29, **characterized** in that the substantially circular cross section of the cylindrical openings (12) of the slots, counting from a back portion (8) of the laminated core, is designed with a discontinuously decreasing radius.

32. A rotating high-voltage single-winding/multiple-winding machine wherein the magnetic circuit comprises a magnetic core and one or more windings, phase-shifted in space, ~~characterized in that~~ wherein the magnetic core is formed with salient poles.

33. A rotating high-voltage single-winding/multiple-winding machine, ~~characterized in that~~ wherein it is air-gap-wound.

34. A rotating high-voltage single-winding/multiple-winding machine, ~~characterized in that~~ wherein the air-gap flux is radial.

35. A rotating high-voltage single-winding/multiple-winding machine, ~~characterized in that~~ wherein the air-gap flux is axial.

36. A method for manufacturing a rotating high-voltage single-winding/multiple-winding machine comprising a magnetic circuit comprising a magnetic core comprising slots, channels or the like, whereby these slots etc. have at least one opening, accessible from the outside of the magnetic core, and a winding, **characterized** in that the winding is flexible and is threaded into the opening.

37. A method for manufacturing a magnetic circuit for a rotating high-voltage single-winding/multiple-winding machine, wherein the magnetic circuit is arranged in the stator and/or rotor of the rotating electric machine, which magnetic circuit comprises a magnetic core (8) with slots (10) for two or more windings (1), phase-shifted in space, and wherein the slots are formed as cylindrical openings (12), extending axially and radially outside one another, with a substantially circular cross

section, the method being **characterized** in that the winding comprises a cable which is threaded into the cylindrical openings.

38. A method for manufacturing a magnetic circuit for a rotating high-voltage single-winding/multiple-winding machine, wherein the magnetic circuit is arranged in the stator and/or rotor of the rotating electric machine and is formed as salient poles, the method being **characterized** in that the winding comprises a cable which is wound around the salient poles.